

WHAT IS CLAIMED IS:

1. An apparatus for sensing biometric information in a finger, comprising:
an array of discrete piezo ceramic elements responsive to acoustic characteristics of parts of the finger; and
filler distributed between said discrete piezo ceramic elements, said filler providing acoustic attenuation and electric isolation between said discrete piezo ceramic elements.
2. The apparatus of claim 1, wherein said filler further suppresses shear waves between said discrete piezo ceramic elements and provides mechanical support for said discrete piezo ceramic elements.
3. The apparatus of claim 1, wherein said filler includes microspheres.
4. The apparatus of claim 1, wherein said microspheres include vinyl microspheres.
5. The apparatus of claim 1, wherein said discrete piezo ceramic elements comprises a plurality of discrete columnar piezo ceramic elements, each columnar element having a first end and a second end.
6. The apparatus of claim 5, wherein each first end is electrically coupled to a first grid of conductors and each second end is electrically coupled to a second grid of conductors.
7. The apparatus of claim 6, wherein said first grid of conductors is coupled to a protective layer that can receive a ridge pattern of the finger positioned proximate to said array, wherein air in valleys between ridges of the ridge pattern of the finger acts as an acoustic barrier.
8. The apparatus of claim 7, wherein said second grid of conductors is coupled to a backing layer.

9. The apparatus of claim 7, wherein said second grid of conductors has an air backing, said air backing being acoustically mismatched with said discrete columnar piezo ceramic elements.
10. The apparatus of claim 5, further comprising a protective layer acoustically coupled to said first ends of said elements, wherein said protective layer receives a ridge pattern of the finger positioned proximate to said array such that air in valleys between ridges of the ridge pattern of the finger acts as an acoustic barrier.
11. The apparatus of claim 5, further comprising a backing layer, said backing layer being acoustically mismatched with said discrete columnar piezo ceramic elements.
12. The apparatus of claim 11, wherein said backing layer comprises air.
13. The apparatus of claim 11, wherein said backing layer comprises foam.
14. The apparatus of claim 1, wherein said discrete piezo ceramic elements include lead zirconate titanate.
15. A biometric sensing apparatus, comprising:
a piezoelectric ceramic sensor; and
a processor, coupled said sensor, that receives an input from said sensor and produces an output, wherein said sensor comprises an array of piezoelectric ceramic elements and includes a sonic barrier between each of said elements.
16. The apparatus of claim 15, wherein said sonic barrier is air.
17. The apparatus of claim 15, wherein said sonic barrier is an epoxy containing micro-spheres.
18. The apparatus of claim 17, wherein said micro-spheres are vinyl.

19. The apparatus of claim 15, further comprising:
a medium that conducts sonic energy, said medium being coupled to said sensor so that a low sonic energy barrier is formed between said medium and said sensor.
20. The apparatus of claim 19, wherein said medium has an impedance that facilitates conducting sonic energy into tissue.
21. The apparatus of claim 20, wherein said medium is a polymer.
22. The apparatus of claim 20, wherein said medium is urethane.
23. An apparatus for sensing biometric information in a finger, comprising:
an array of discrete piezo ceramic elements responsive to acoustic characteristics of parts of the finger; and
material distributed between said discrete piezo ceramic elements, said material providing acoustic attenuation and electric isolation between said discrete piezo ceramic elements.